

**Review Comments
Draft Source Control Evaluation Report
Sulzer Pumps Facility
2800 NW Front Avenue
Portland, Oregon
DEQ ECSI No. 1235**

Submitted on August 27, 2015

Following are the United States Environmental Protection Agency's (EPA) comments on the document entitled, Source Control Evaluation (SCE) Report Sulzer Pump Facility, dated May 7, 2015, and prepared by GeoDesign, Inc. for Sulzer Pumps (US) Inc. The Site is located at 2800 NW Front Avenue and includes the adjacent property Dolan and Co. located at 2700 NW Front Avenue, Portland, Oregon, listed as State of Oregon, Environmental Cleanup Site Information (ECSI) number 1235.

EPA understands the objectives of the SCE were to provide a summary of results of the identification, evaluation, and control of potential sources of contamination on the project Site that may discharge to the Willamette River. EPA's review and subsequent comments are focused on portions of the report, specifically the groundwater pathway, which were added since EPA's review of the SCE dated June 1, 2012. Notably there were other documents referenced in the report that, if available, could provide additional background information that may revise our comments below.

The following comments include revisions and refinements following DEQ's review and meetings with EPA. In addition, the revisions compare contaminant concentrations to the June 2015 version of the Portland Harbor Superfund Site Preliminary Remediation Goals.

General Comments

1. EPA comments dated August 10, 2012 were not addressed in the revised report. These include comments related to insufficient evaluation of the stormwater pathway found at General Comments 1 and 2 and Specific Comments 1, 2, 4, 5, 6, 12, and Appendix F comments. Stormwater discharging from the Site exceeds the most recent version of the Portland Harbor Superfund Site Preliminary Remediation Goals (PRGs) (June 2015) that EPA developed for the Portland Harbor Superfund Site for metals, phthalates, polychlorinated biphenyls (PCBs), and polyaromatic hydrocarbons (PAHs). In addition, Cadmium and Bis (2-ethylhexyl) phthalate (BEHP) concentrations in stormwater fall within the "elevated" range of DEQ's rank order curves for Stormwater at Portland Harbor Heavy Industrial Sites (Appendix E of DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites). The presence of these contaminants in sediment near stormwater outfalls at concentrations exceeding the PRGs indicate further source control is needed to ensure concentrations in stormwater do not increase and do not compromise protection of the Willamette River. Implementation of further source control measures may reduce the potential for recontamination of near-shore remedial action areas being evaluated in the Portland Harbor Feasibility Study (FS) Alternatives E, F, and G. The sediments and near-shore areas are shown in the Portland Harbor FS Figures 3.6-5f, 3.6-6f, and 3.6-7f for the river mile (RM) 10.4W area adjacent to the Sulzer Pump facility.

2. A riverbank soil erodability assessment should be included in the SCE because existing soil data indicates that metals, PCBs, and PAHs in riverbank soils exceed the PRGs and have the potential to erode and recontaminate Willamette River sediments. Riverbank soil below the mean high water (MHW) level and any areas not armored should be characterized to determine if chemicals of concern are present and if the soil is susceptible to erosion. BEHP should be included in the analysis of riverbank soils as part of the evaluation for RAO 9. While reasonable to assume that soil samples collected above the MHW are representative of concentrations in exposed soil below the MHW, characterization of the riverbank south of the 2011 riverbank soil sample locations was incomplete. The SCE report included 2003 riverbank and sediment results, but the locations were not shown on any map and there were no PCB results for the 2003 samples. EPA believes that additional soil sampling along the entire riverbank is necessary to address the data gap. The extent and effectiveness of the slag armoring to prevent riverbank erosion is uncertain without a proper soil erodability assessment.
FS Figures 3.6-5f, 3.6-6f, and 3.6-7f indicate that in-water remedial actions are planned to address near-shore sediment in the RM 10.4W area adjacent to the Sulzer Pump facility; however, no riverbank action is included in the FS remedial alternatives for this area as of August 2015. Although the limited characterization of PCBs indicate concentrations are within one order of magnitude of the 36 micrograms per kilogram ($\mu\text{g/kg}$) PRG for sediment (RAO 6) and within two orders of magnitude of the 9 $\mu\text{g/kg}$ PRG for riverbank soil (RAO 9), EPA suggests that the erodability study include supplemental data collection and evaluation of future source control measures to protect the Willamette River and the in-water actions being evaluated at RM 10.4W.
3. PCBs are a chemical of concern based on known PCB sources at the site and PCB concentrations exceeding PRGs in soil, stormwater, stormwater solids, and in the offshore sediments. Other than the SCE report relating PCB contaminants to transformer fluids and soil at the substations, no other potential PCB sources were evaluated (e.g., cutting cooling fluids used in pump manufacture and testing, PCB-containing fluorescent light ballasts, PCBs from previous site use of overhauling marine vessels, or PCBs in building materials from the old dock structure). EPA acknowledges that the presence of PCBs in many portions of the site have been thoroughly investigated; however, the 2011 riverbank soil sampling identified PCB concentrations exceeding Portland Harbor PRGs. PCB concentrations in groundwater and in the riverbank along the south half of the site are not well characterized. Given the presence of PCBs in soil, stormwater, stormwater solids, and in offshore sediment, EPA recommends that future groundwater monitoring include PCB analysis to rule out transport to the river via the groundwater pathway.
4. In addition to screening with the Portland Harbor Joint Source Control Strategy (JSCS) Screening Level Values (SLV), the SCE should compare sampling results to Portland Harbor PRGs that are now being implemented for remedial action. The PRG table from June 2015 includes values for RAO 9 for riverbank soil.

Specific Comments

1. Section 5.5, page 21 - EPA recommends that future groundwater monitoring be conducted within the pertinent seasonal periods to achieve the objective of collecting groundwater data that represents low and high static water level conditions as determined by onsite measurements. The timing of sample collection should consider diurnal and/or mixed semidiurnal tide cycles, which may affect contaminant movement from the vadose zone.

2. Section 6.3, page 24 - A groundwater elevation contour map should be prepared and included in the discussion of groundwater monitoring results so that contaminant fate and transport may be assessed. The gradient map should cover seasonal variations in groundwater gradient, if they occur.
3. Section 7.0, page 25 - A source control evaluation should be completed for the groundwater pathway following Portland Harbor JSCS guidance.
4. Section 7.0, page 25 - A source control evaluation should be completed for the riverbank soil erosion pathway for protection of the Willamette River. A source control evaluation should characterize riverbank soil below the MWH line (which are prone to Willamette River erosional forces) and include the geometry and composition of riverbank soil, armoring, an assessment of erosion mechanisms, and COC characterization. Results from composite river bank soil samples CBS-1, CBS-2, CBS-3, and CBS-4 had metals, PCBs, and PAHs exceeding one or more JSCS upland soil/sediment SLVs. All four composite riverbank soil samples had PCB concentrations exceeding the ecological PRG of 36 µg/kg for RAO 6 and the riverbank soil PRG of 9 µg/kg for RAO 9. Although the limited PCB data exceeds PRGs for PCBs within one or two orders of magnitude, EPA suggests that additional analyses for PCBs be performed with the erodability assessment.

The portion of the riverbank below the dock should be described as a data gap or included in the evaluation because it comprises the majority of the Site's riverbank and may have been affected by historical releases of chemicals.

5. Section 7.0, page 25 - BEHP should be included in future analyses of riverbank soil. The compound's presence in stormwater and catch basin sediment samples above the JSCS SLVs and orders of magnitude greater than the PRG values for sediment (RAO 5) and riverbank material (RAO 9) is evidence that it may be a potential source or "legacy" material.
6. Section 8, page 29 - A conclusion for metals concentrations in groundwater should be included. Arsenic was detected and exceeded the PRG for human health in many samples, but below the PRGs for the environment.
7. Section 8.0, page 29 - States, "In riverbank soil, PCBs (together with some metals) were detected slightly above the most stringent SLV." This statement is inconsistent with the data presented in Tables 3 and 4 which describe arsenic, copper, lead, manganese, mercury, nickel, zinc, indeno(1,2,3-cd)pyrene, Aroclor-1260, and total PCBs as exceeding the most stringent SLVs within the same order of magnitude to three orders of magnitude. PCBs in riverbank soil exceed the PRG of 36 µg/kg by up to an order of magnitude. As previously mentioned, in-water remedial actions are planned to address sediment in the RM 10.4W area adjacent to the Sulzer Pump facility; however, no riverbank action is included in the FS remedial alternatives for this area as of August 2015.
8. Table 11 - Presents data for temporary wells previously sampled. Some of the temporary well locations listed in Table 11 (e.g., GP-12, GP-13, and GP-14) are not shown in Figure 3. Conversely, Figure 3 identifies some temporary well locations but no data is presented for these locations in Table 11 (e.g., GP-2 and GP-9). Historical sample results should be presented in their entirety in order to characterize groundwater to the fullest extent possible.

9. Figure 6 - A trend for PCB concentrations should be added to the figure to help evaluate trends. PCBs have been historically used at the Sulzer Pump Site and are present in soil, stormwater, catch basin sediment, and Willamette River sediments.